

REMARKS

This is in response to the Office Actions dated May 11, 2005 and January 18, 2005.

Claims 12 and 14-15 are pending.

With respect to paragraph 2 of the Office Action dated January 18, 2005, the units (Ω/ft) for sheet resistance in the instant specification are objected to. In particular, the Office Action states that " ft " is unrecognized. This objection is respectfully traversed. In particular, " ft " means square. Sheet resistance is almost always measured in units of ohms/square, and this is well known to those of skill in the art. Those of ordinary skill in the art typically use " Ω/ft " as a representation of ohms/square. The instant specification does this. Certainly, the instant specification at page 2, line 26, clearly states that ft means square as is known in the art. Thus, it is respectfully requested that this formality objection to the specification be withdrawn.

Section 112 Rejection

Claims 12, 14 and 15 stand rejected under Section 112, first paragraph, in paragraphs 2-3 of the Office Action. In particular, the Examiner seems to have trouble with the language "substrate heated to a predetermined temperature in a direction from" While applicant does not agree with this rejection, it is easily addressed herein by adding commas to this phrase to make it more clear. In particular, this phrase was previously amended in claim 12 in the April 15 filing to read "substrate, heated to a predetermined temperature, in a direction from . . ." This should make it very clear that the "direction" is referring to how the substrate is moved – not to the temperature. Thus, the Section 112 rejection has been addressed and overcome.

Art Rejection

Claim 12 stands rejected under Section 103(a) as being allegedly unpatentable over Oda in view of Ellis. This Section 103(a) rejection is respectfully traversed for at least the following reasons.

Claim 12 requires "means for positioning a bottom end of a discharge port of a former dispersion head closer to a surface of the substrate than is a bottom end of discharge port of a latter dispersion head, means for conveying the silicon substrate, heated to a predetermined temperature, in a direction from a position immediately below the discharge port of the former dispersion head to a position immediately below the discharge port of the latter dispersion head, and a partition for surrounding a discharged gas between the latter dispersion head and the silicon substrate, the partition being positioned below a circumference of bottom ends of the discharge port of the latter dispersion head." For example, see partition 10 in certain example figures, and the instant specification at page 27, lines 18+. The partition is advantageous, for example, in that when heads positioned at different distances from the substrate are used, the partition permits the gas discharged from the head positioned farther to reach a desired site of a substrate surface without significant dissipation (e.g., pg. 14, line 25 to pg. 15, line 9). Thus, for example, the circumference of gas discharged from the head farther away from the substrate is partitioned. For example, the gas discharged from the head spreads out in the space partitioned by the partition 10 to reach the substrate. In other words, since the partition is in the form of a wall (square structure as shown from above with no top/bottom), the partition 10 prevents or reduces gas from passing through sides of the partition but does not prevent gas from passing through the top/bottom of the partition. This partition thereby allows for the effect described in Example 6 of the instant specification in certain example embodiments of this invention.

Oda has no disclose or suggestion of the claimed partition.

The Office Action contends that in Ellis the injector head base 28 shown in Fig. 1 serves as a partition. Base 28 in Ellis is provided for allowing the gas spread in the distribution chamber 26 above base 28 to flow through the slit 30. This means that in Ellis, the flow of gas is *narrowed* to reach the substrate. Since base 28 of Ellis does not allow gas to flow inside of the partition, it prevents gas from passing through the top/bottom thereof. Thus, base 28 of Ellis cannot be the partition of claim 12 because it does not surround a discharged gas as required by claim 12. Thus, even the alleged combination of Oda and Ellis (which would be incorrect in any event) fails to meet the invention of claim 12.

Additionally, if 28 in Ellis is merely the head base, it cannot also be a partition provided *between the dispersion heads and the silicon substrate*. In other words, if 28 in Ellis is the head itself, it cannot be a partition which is located “between” the head and something else as called for in claim 12. The injector head base 28 of Ellis and the partition 10 of the instant application are entirely different structures, and are unrelated to each other. Thus, both references fail to disclose or suggest the claimed partition, and even if the two references were combined as alleged in the Office Action the invention of claim 12 still would not be met.

Claim 14 requires that the means for positioning and means for conveying cause a titanium oxide film to be formed in a non-uniform manner so that a concentration of the dopant element in the film varies through a thickness of the film so that the concentration of the dopant element in the titanium oxide film is higher adjacent a surface of the substrate than at a location spaced further away from the surface of the substrate. For example, see the instant specification at page 22, lines 11-14. The cited art fails to disclose or suggest this aspect of claim 14.

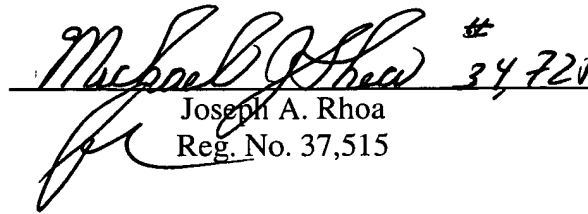
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For at least the foregoing reasons, it is respectfully requested that all rejections be withdrawn. All claims are in condition for allowance. If any minor matter remains to be resolved, the Examiner is invited to telephone the undersigned with regard to the same.

Respectfully submitted,

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